Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Allocation and Designation of Spectrum for	)	
Fixed-Satellite Services in the 37.5-38.5 GHz,	)	IB Docket No. 97-95
40.5-41.5 GHz and 48.2-50.2 GHz Frequency	)	
Bands; Allocation of Spectrum to Upgrade Fixed	)	RM-8811
and Mobile Allocations in the 40.5-42.5 GHz	)	
Frequency Band; Allocation of Spectrum in the	)	
46.9-47.0 GHz Frequency Band for Wireless	)	
Services; and Allocation of Spectrum in the	)	
37.0-38.0 GHz and 40.0-40.5 GHz for	)	
Government Operations	)	

REPLY COMMENTS OF THE BOEING COMPANY

The Boeing Company ("Boeing"), by its attorneys and pursuant to Section 1.415 of the Commission's rules, 47 C.F.R. § 1.415 (2000), respectfully submits Reply Comments addressing some of the comments that were filed in response to the above-captioned Further Notice of Proposed Rule Making (*"FNPRM"*) regarding frequency allocations and designations for satellite and other services.

The most recent round of comments that were filed in this proceeding provide additional evidence of the true level of interest that different sectors of the communications industry have in developing networks in the 37.0-43.5 GHz band. Satellite operators expressed strong support for Commission action that would provide additional opportunities to develop a new generation of satellite communications networks to serve the public. In contrast, terrestrial wireless interests demonstrated, at

best, moderate interest in these spectrum allocations, which they have underused in the past and are unlikely to fully utilize in the future. Boeing urges the Commission to remain cognizant of this contrast when making policy decisions that will affect the future of these frontier spectrum resources.

I. THE COMMENTS FILED IN THIS PROCEEDING DO NOT JUSTIFY ANY DEVIATION IN THE UNITED STATES FROM THE SATELLITE DOWNLINK PFD LIMITS THAT WERE ADOPTED BY WRC-2000 FOR THE 37.5-40.0 GHz BAND.

In its comments, Boeing described the benefits that would result from implementation in the United States of the satellite power-flux-density (PFD) limits that were adopted at WRC-2000 for the 37.5-40.0 GHz band. Consistent limits would permit satellite services to be provided in all regions of the world, dramatically reducing equipment costs and enabling the provision of universally available broadband communications services.

The Commission is justified in adopting the PFD limits included in Table S21-4 of the Radio Regulations. The Table S21-4 PFD limits were accepted worldwide, including by the U.S., during the WRC-2000 deliberations. Before adopting limits that deviate from the WRC-2000 limits, a clear demonstration should be made to the Commission as to why the globally accepted limits are inadequate.

The major proponent of imposing further constraints on satellite operators through reduced PFD limits in the 37.5-40.0 GHz band is Winstar Communications. Winstar proposed that the satellite PFD limits in Table S21-4 be reduced by 12 dB for operations

in the Untied States accompanied by institution of "a manageable 'vehicle' for being able to increase power up to the Table S21.4 levels during fading conditions."[1] Winstar is the only party that submitted any technical material that attempts to justify reducing the satellite PFD limits. Winstar's showing is inconclusive and, as a result, cannot be used to justify a deviation from the Table S21-4 limits.

Winstar's analysis is premised on a threshold interference-to-noise (I/N) ratio above which interference to Winstar's fixed links in the 37.5-40.0 GHz band would be deemed harmful.[2] Winstar does not provide any information, however, on the characteristics of its actual links and whether or not more than a diminimus number would be affected. Boeing documented in its comments that Winstar and other terrestrial licensees have made very limited deployment in the 38.6-40.0 GHz band. It can be anticipated that Winstar is not likely to make significant additional geographic expansions of service once it emerges from bankruptcy.

Thus, it appears that Winstar is requesting the Commission to deviate significantly from the global agreements that were adopted at WRC-2000 and instead provide theoretical and speculative relief to, at most, a small number of domestic users. Such action would not serve the public interest. Much greater public interest benefits could be achieved by maintaining consistent global standards for satellite services, which will have significant beneficial impacts for consumers in the United States and abroad.

Winstar's second argument is that satellite operators should be required to maintain maximum PFD limits that are applicable to clear sky conditions, and increase

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[1] *Winstar Comments* at 7.

[2] *See id.,* Attachment 1, at 13-15.

power only in the event of rain fade. In contrast, WRC-2000 agreed that satellite operators should be permitted to comply with maximum PFD limits that are associated with rain-faded conditions.

Ironically, the Winstar approach would not only harm satellite operators by unnecessarily constraining their operations, but would also harm terrestrial licensees at 38.6-40.0 GHz that might have benefited from arrangements with satellite operators to share spectrum. An unnecessary additional constraint on satellite use simply reduces the potential value of the spectrum sharing opportunity, adversely affecting both satellite service providers and terrestrial licensees.

II. THE COMMISSION SHOULD NOT PLACE UNREASONABLE AND UNNECESSARY RESTRICTIONS ON SATELLITE EARTH STATIONS OPERATING IN THE 37.5-40 GHz FREQUENCY BAND.

As Boeing acknowledged in its comments in this proceeding, the PFD limits adopted by WRC-2000 provide an effective discriminator for satellite earth station deployment in this sub-band. The limits restrict the types of earth stations that can operate in the band, thus ensuring that wireless services have a clear advantage over satellite services in developing new networks.[3] In light of the effective restrictions created by the WRC-2000 PFD limits, the Commission does not need to place any additional restrictions on satellite earth station function or usage.

In contrast, the Wireless Communications Association ("WCA") is urging the Commission to place additional restrictions on satellite earth stations in the 37.5-40.0 GHz band. WCA argues that permitting satellite usage of the band would be unfair

[3] *See FNPRM* ¶ 40.

because "unlike the vast majority of FSS providers who intend to operate in the 39 GHz band, fixed wireless EA licensees paid for their spectrum at auction."[4] It would be spectrally inefficient, however, to prevent satellite operators from sharing the 37.5-40.0 GHz band with terrestrial operators solely because some terrestrial licensees obtained their licenses at 38.6-40.0 GHz through auction. It would also be unfair to unnecessarily penalize satellite operators, such as through restrictions that would force earth station licensees to accept interference from Fixed Service ("FS") links that were deployed after an earth station was placed into operation.

WCA also claims that the Commission's plan to require coordination of all proposed FS stations that are within 16 kilometers of the boundary of the licensing area of any incumbent satellite earth station "imposes inequitable technical and economic burdens on EA licensees in the [38.6-40.0] GHz band, and thus puts deployment of that spectrum for fixed wireless broadband service at risk"[5] This argument, however, is unpersuasive. A 16 kilometer coordination trigger already exists to protect incumbent terrestrial stations from interference from newly proposed terrestrial stations. The coordination trigger was created prior to the auction for the 38.6-40.0 GHz spectrum.[6]

Expanding the 16 kilometer coordination rule to protect operational earth stations would not result in any significant additional burden to operators of new terrestrial

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[4] *WCA Comments* at 6.

[5] *WCA Comments* at 6.

[6] *See Amendment of the Commission's Rules Regarding the 37.0-38.6 GHz and 38.6-40.0 GHz Bands; Implementation of Section 309(j) of the Communications Act – Competitive Bidding, 37.0-38.6 GHz and 38.6-40.0 GHz*, Report and Order and Second Notice of Proposed Rule Making, FCC 97-391, ¶ 69 (Nov. 3, 1997).

stations. Terrestrial operators with Economic Area licenses in the 38.6-40.0 GHz band tend to limit their service to urban office buildings, which are generally more than 16 kilometers from the border of Economic Areas. As a result, coordination with existing earth stations should not impose a burden on the deployment of new terrestrial facilities.

Finally, WCA seeks to restrict satellite operators by "limiting the number of gateway stations in the 37.0-40.0 GHz band that may be constructed by any single FSS operator."[7] Such an arbitrary restriction, however, would impair the efficient use of the spectrum, without providing appreciable gains to terrestrial operators. Instead, satellite earth station operators should be permitted to utilize more fully the 37.5-40.0 GHz band. Prospective terrestrial operators were fully apprised by the Commission prior to the auction for 38.6-40.0 GHz spectrum that they would be expected to share the band with satellite earth stations. No reason exists for the Commission to alter its position, particularly since it would unnecessarily impair the efficient use of the spectrum.

III. THE COMMISSION SHOULD REJECT THE SATELLITE PFD LIMITS PROPOSED BY CORF TO PROTECT THE RADIO ASTRONOMY SERVICE IN THE 42.5-43.5 GHz FREQUENCY BAND.

In its comments, the National Academy of Sciences' Committee on Radio Frequencies ("CORF") proposes that the PFD limits currently included in ITU-R footnote S5.551G be lowered by 15 dB for GSO satellites to protect the Radio Astronomy Service in the 42.5-43.5 GHz band.[8] Boeing does not believe that an adequate technical basis has been established to justify CORF's proposed lower limit.

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[7] *WCA Comments* at 7.

[8] *See CORF Comments* at 2.

As Boeing indicated in its comments in this proceeding, interested Administrations are currently conducting studies through the ITU-R in accordance with Resolution 128 to review the S5.551G provisional PFD limit of –167 dBW/m^2/MHz. These studies have not established a final PFD limit for emissions in the 42.5-43.5 GHz band that would be applicable to satellites operating in either the 41.5-42.5 GHz band or the 42.0-42.5 GHz band. The Commission should allow ITU-R working parties to complete their studies, which can be used by WRC-03 to adopt internationally supported limits, before the Commission imposes its own PFD limits on satellite operations.

IV. THE COMMISSION SHOULD ADD AN FSS SPACE-TO-EARTH ALLOCATION IN THE 42.0-42.5 GHZ BAND

Boeing concurs with the position of TRW that the Commission should add an FSS space-to-Earth allocation in the 42.0-42.5 GHz band.[9] Adding such a FSS allocation would give more flexibility to FSS operators in coordinating their spectrum use with other services in the 36.0-51.0 GHz band.

V. CONCLUSION

Boeing urges the Commission to take the actions discussed above in order to permit access to necessary spectrum resources by satellite users in the 37.0-43.5 GHz

[9] *See TRW Comments* at 15-18.

band and to avoid inadvertently hampering the development of new satellite communications network that can provide beneficial services to consumers.

Respectfully submitted,

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